

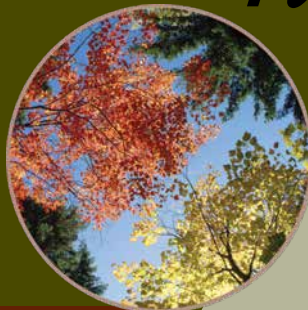
2013



# Forest Health

## DELAWARE

### *highlights*

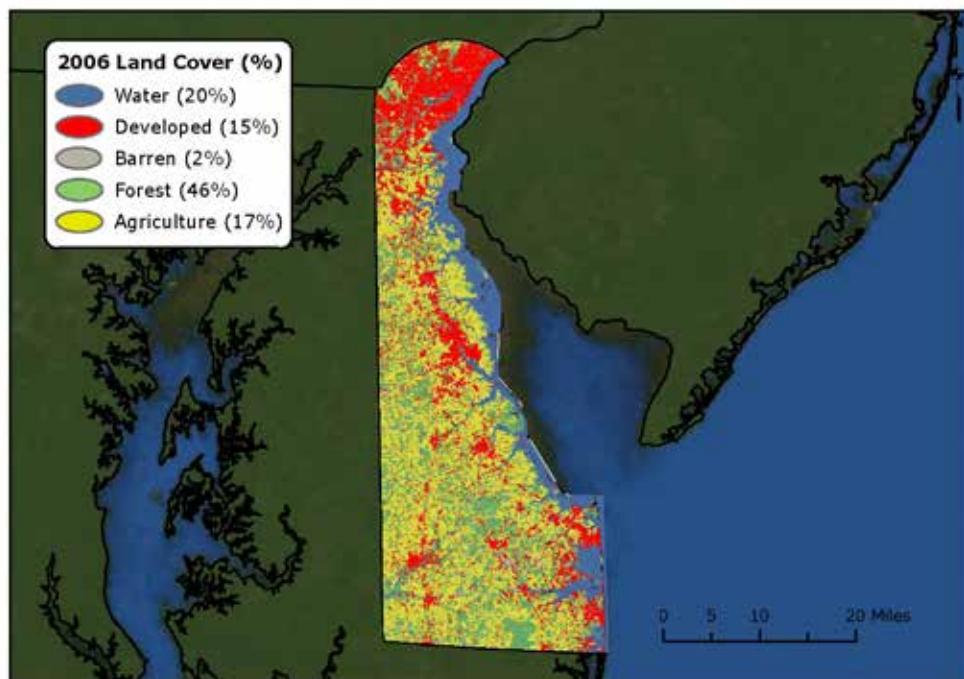


## The Resource

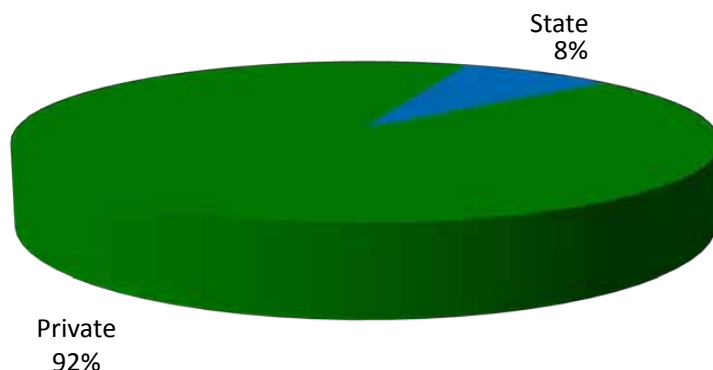
Delaware's forests presently cover approximately 371,000 acres, roughly one-third of the land area in the State. Delaware has had a rapid conversion of forests and agricultural lands to residential and other urban uses since the 1980s.

## Weather Conditions

The year 2013 was much wetter than normal for Delaware, until September, which was a drought month. Drought-related pest and disease issues appear to have slowed somewhat for this year, though the cumulative stress of summer droughts in the last 8 years still loom over the State's forests.



Forest Land Ownership in Delaware, 2007



## Forest Health Programs

State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.

## Aerial Surveys

The entire State of Delaware was aerially surveyed in late June to detect gypsy moth, southern pine beetle, and other damaging agents. Nine sites were noted in all.

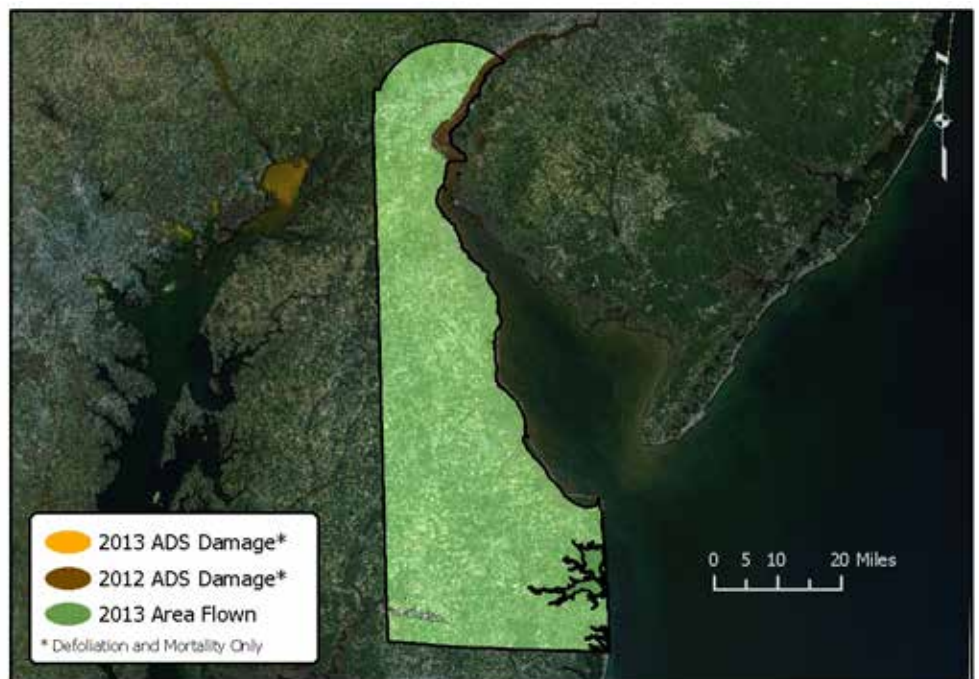
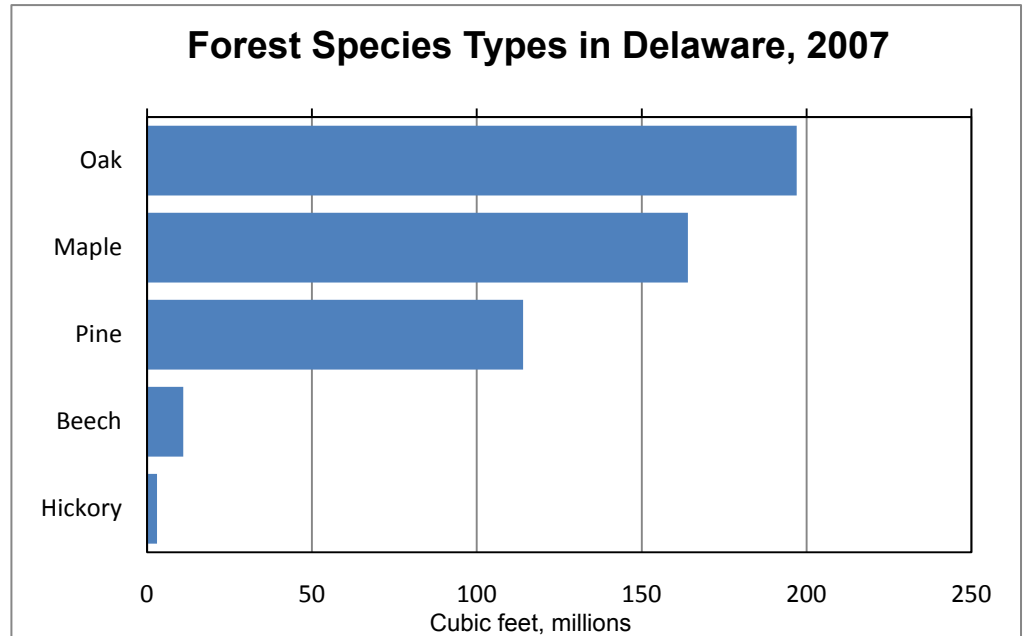
No gypsy moth defoliation was detected.

Two Southern pine beetle spots were noted. Follow-up ground inspection found one of the spots to be a new one-half acre infestation in Assawoman State Wildlife Area loblolly pines, the other likely to be flood damage. Nine sites were noted in all.

Many of the other sites noted were flood damaged along the coast and nearby tidal waterways.

One site was a mature oak forest in decline due to armillaria root rot, hypoxylon canker, and other disease related to drought stress.

Most of the mortality noted on all sites was from previous years, except that due to Southern pine beetle.



*This map delineates aerial detection survey (ADS) results for Delaware in 2013 and 2012.*

## Forest Pest Issues

### Gypsy Moth

Gypsy moth activity remained very low in 2013. No significant defoliation due to gypsy moth was observed in 2013. Interestingly, defoliation of a single landscape spruce tree was reported from northwestern Delaware.

### Emerald Ash Borer (EAB)

Ash represents only about 1 percent of Delaware's rural forests but is a significant component of the urban forest in some areas. In 2013, the Delaware Forest Service used two techniques to survey for EAB. One was the Buprestid-hunting wasp (*Cerceris fumipennis*), which was used in a biosurveillance program. The second technique was visual surveys that were carried out at rest areas on Interstate 95 and Route 1. This year, the Plant Industries Section serviced 54 purple prism traps throughout the State. EAB was not detected by either of these methods in 2013.

### Asian Longhorned Beetle (ALB)

ALB is a serious threat to a variety of hardwood species, especially the rural and urban maples throughout Delaware. Trapping that was begun in 2012 was continued in 2013. Ten panel traps were set out in wooded areas near industrial (especially pallet-using industries) and high travel areas. Visual surveys for ALB were also conducted along high travel corridors in the northern half of the State.

### Sirex Woodwasp (*Sirex noctilio*)

*Sirex noctilio* presents a threat to loblolly pine, the mainstay of the forest products industry in southern Delaware. In 2013, 18 Lindgren traps baited with a *Sirex* blend were hung at 9 sites throughout the State. *Sirex* has yet to be detected in Delaware, although native Siricids were collected.



Lindgren trap for capture of *Sirex noctilio*.

### Other Insects

For 2013, service foresters reported *Ips* beetles, various gall forming insects, beech blight aphid, fall webworm, spider mites, and the usual bagworms causing damage on several occasions. Also noted was one instance of introduced pine sawfly defoliating about 10 landscape-planted white pines.

### Disease Concerns

#### Hypoxylon Canker (*Hypoxylon atopunctatum*)

New mortality due to the canker continued throughout the State, but smaller numbers were reported in 2013. This change likely is due to the relief from drought stress with this year's heavier-than-normal rainfall amounts throughout spring and until September. The cumulative effects of drought are still of concern for the foreseeable future.



## Other Diseases

Fire blight and anthracnose diseases were reported in higher-than-normal numbers in 2013. Swiss needle cast on Douglas-fir, and other rust diseases were common as well.



*Anthracnose disease on sycamore leaves.*

## Forest Health Monitoring

### Deer Exclosures

Delaware Forest Service's 16 fenced exclosures were revisited this summer to look at the difference in both tree seedling growth and overall vegetation from nearby open control plots. The oldest exclosures are now about 8 years old, and many are visibly different than the open plots; however, the complex data still need statistical analyses.

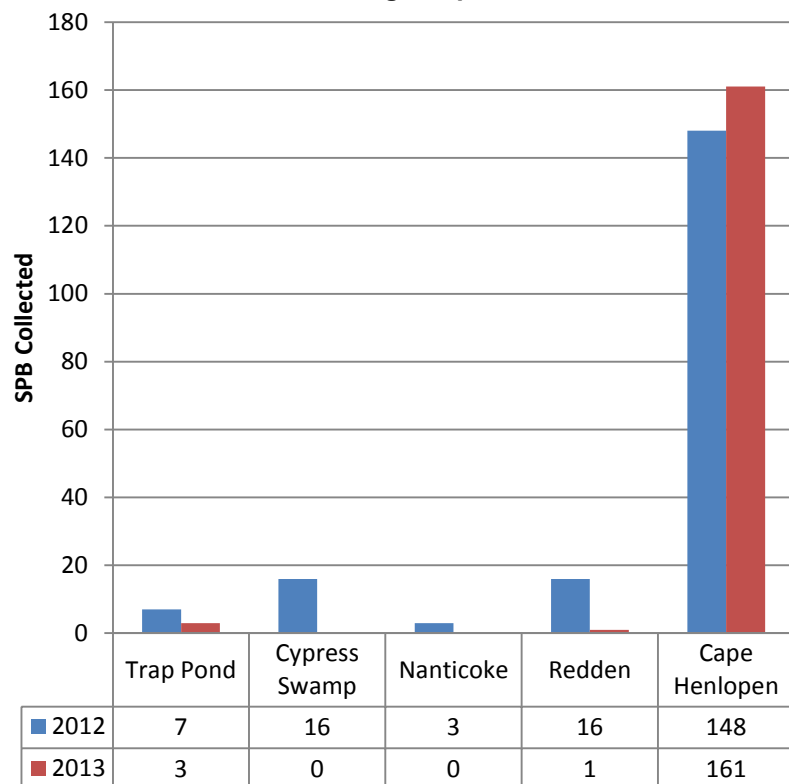


*Deer exclosure.*

### Southwide Southern Pine Beetle (SPB) Study

Delaware participated in the Southwide SPB pheromone study again this year, within four loblolly pine stands in Sussex County. Loblolly pine is a major forest component in the county and is a mainstay of the forest industry there. SPB counts were very low this year on these four sites. A fifth site within a pitch pine stand in Cape Henlopen State Park (across the Delaware Bay from New Jersey's SPB-infested pitch pines), which was first surveyed last year and found to contain high numbers of SPB, was surveyed again this year. SPB counts were found to be even higher than last year. Once again, no pine damage was noted within the park despite these high numbers. Monitoring will continue within the park to determine whether tree damage may be on the horizon.

**Southern Pine Beetle Counts in Delaware, by location, 2012 through September 5, 2013**



## Acknowledgments

The aerial detection survey map was produced by the U.S. Forest Service, Forest Health Protection, in Morgantown, WV, using survey data from the Delaware Department of Agriculture, Delaware Forest Service.

Photos: Delaware Department of Agriculture, Delaware Forest Service

## References

### Land Cover Map:

U.S. Geological Survey. 2011. 2006 National land cover dataset. Sioux Falls, SD.

### Forest Land Ownership, Forest Species Type:

U.S. Department of Agriculture, Forest Service. 2009. Forest resources of the United States, 2007. Gen. Tech. Rep. WO-78. Washington, DC. 336 p.



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